HEADQUARTERS BUILDINGS

Design - Construction - Maintenance

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INTRODUCTION

The primary purpose of this paper is to inform REA field engineers how they may assist REA borrowers in arriving at the best solution for their headquarters building problems. It has been said that a building is no better than its foundation, but it should not be implied from this axiom that a good foundation will always result in a good, or better yet, functional headquarters building; there are a lot of problems that need be solved before pouring the foundation. For a building to be functional, it must be designed to meet certain requirements. These requirements are not the same for each borrower; consequently a study of each case will be necessary. In addition to the specific requirements of the borrower, outside influences on the design of the structure may also be exerted by climatic conditions, local laws or building codes, topographic characteristics of the site, and the kind of building materials available locally or in preferential use in the community. The main factors, taken from these requirements and conditions, which have the greatest influence on the design of the project will be briefly elaborated upon. The field engineer should see that each factor, along with any individual problem not mentioned is given due consideration in the design and construction of the project.

SITE CONSIDERATION

Usually the first problem to be encountered, the general location, will have been solved. For many borrowers, a big problem exists here. It may be that the electric system has grown or is growing in a direction which will no longer place the present headquarters building near the center of the system. The result is that operating and maintenance costs have or will become higher than they would be at a more advantageous location. Or perhaps the system has grown in several directions, or local conditions are changing and becoming such as to warrant consideration of obtaining branch facilities at one or more locations. The field engineer's part is to assist the borrower in analyzing the situation and to help determine whether it would be more practical and economical to operate from one central point or from two or more points.

If, after careful planning, it develops that branch facilities are justified, the justification will usually determine just what type of facilities will be required at each location. The next step will be to roughly estimate the size of the piece of property necessary to provide for the type of facilities desired and to include space for a pole yard and off street parking when required. It is not so important to give a lot of consideration to the size of the site except in those areas where desirable property is available only in small parcels of less than one acre and the cost is unusually high, or a great deal of site preparation is necessary. A small or irregularly shaped site may influence the size or shape of the building. A site one acre in size will seldom be too small, and it will usually provide sufficient space for everything required including landscaping opportunities. Where a borrower has a choice of sites, the field engineer can apprise the borrower of the advantages of each location. Personnel problems, operating

economies, advantages of in-town and out-of-town sites, cost of retaining, future development of the area, and future expansion of the electric system are just a few of the things that should be considered in selecting the most desirable location.

PRELIMINARY PLANS

At this point, it will be assumed that the site or sites have been selected and a general idea has been formed of just what type of facilities will be required at each location. For the purpose of illustration, it will also be assumed that branch facilities have been justified, and that the main and branch facilities will be new even though adequate branch facilities can be purchased quite frequently at a more reasonable cost than they can be erected. It is not required, however, that a borrower obtain its main and branch facilities at the same time, but consideration must be given to the space requirements for the facilities to be at each location.

The next step is to plan the buildings. REA has prepared a number of Suggested Layouts of main and branch headquarters buildings to assist a borrower in the preparation of a plan for its own headquarters facilities. These layouts are available to borrowers and architects upon request. If one of these layouts is reasonably close in size and shape to the borrower's requirements, it may be used as the "preliminary plan." If none of the layouts will reasonably represent the structure as the borrower desires it, or as might otherwise be required, then the services of an architect should be obtained. This would be desirable in any event so that site development work can be illustrated, and a brief outline of specifications prepared; all of which will be needed to prepare an accurate cost estimate for the project.

A little more information about the development of the Suggested Layouts available from REA might be added here. Over a period of time, REA has been able to accumulate sufficient information to estimate the size of a building required by a given sized borrower. When the ultimate number of miles of line to be served by a borrower can be determined, the space required for storage of vehicles and line materials can be estimated within a reasonable degree of accuracy for a typical cooperative. With the number of members known which will ultimately be served, the office space requirements can likewise be determined. An REA bulletin will be prepared soon which will contain a table disclosing REA findings on space requirements. It will explain how to use the table in the design of main and branch facilities. Usually it will be less expensive in the long run to erect adequate facilities at the start to take care of ultimate occupancy requirements, but this is not required. Where only a portion of the ultimate requirements is proposed initially, the structure should be designed so that an addition would not result in costly remodeling work.

ARCHITECTURAL SERVICES

A large number of borrowers are headquartered in small communities where there have been very few or no buildings erected upon which there has been full or even part time architectural service. Because of this, some borrowers hesitate to engage the services of an architect since they cannot understand why one would be needed. The buildings which have been erected in the community are usually store buildings consisting of little more than four walls, a roof, floor, a few partitions, a heating system with a questionable efficiency rating and, quite often, a fire hazard.

The cost of these structures probably averaged about $10,000 each with few costing over $15,000. A complete headquarters project will usually approach or exceed $100,000 and several have approached or surpassed $200,000. For such an investment, the best architectural service available should be obtained. A good architect will perform a lot of services for his clients; he will save more on construction costs than his services will cost and the appearance of the structure will certainly be more pleasing as the result of a professional touch. Moreover, it is required that REA retain a complete and accurate set of plans and specifications of a project for which loan funds have been used; this will usually require the services of an architect. The completed project will reflect the competency of the architect and the field engineer will do well to impress upon the borrower the necessity for retaining a good one. The cost for architectural service is usually fixed at a percentage of the cost of construction, and it is not dependent upon how well qualified the architect may be. If the architect selected has already performed services for an REA borrower, his services can be more valuable than one who has not had the opportunity to become associated with the program. Any architect should be able to develop a preliminary set of plans in a short time with a minimum amount of information and the assistance available from one of REA's suggested layouts. The completeness of the final plans and specifications will depend considerably upon the competence of the architect and his staff or associates.

GENERAL LAYOUT

In reviewing a preliminary plan, a field engineer should be guided in his remarks by the good points he has observed in other borrowers' headquarters buildings. An arrangement of rooms and offices which expedite the flow of work is that characteristic which makes the office portion functional. As for the service portion of the structure, ease in the handling and storage of materials and vehicles is the important feature. A few characteristics of a well-planned, conventional headquarters building will be given which would also apply to a branch building where applicable.

Generally the design will provide for a building one story in height, suggestive of a cooperative enterprise and void of expensive ornamentation. Its shape will be the result of a functional layout and each office or work area will receive natural light and ventilation even though the structure may be air conditioned. All of this may be accomplished with a minimum of waste space in corridors as is evidenced by the REA Suggested Layouts. One such layout is shown in Figure 1.

Anyone, upon entering the lobby, should be greeted by the receptionist or cashier. From the lobby, it should be easy to enter all other offices or areas where the person might have business. Direct entrance to every area is, of course, impossible, and not desirable insofar as the manager's office is concerned. The receptionist, or cashier acting as a receptionist, should to a certain extent, exercise control over visitors' access to the manager's office. This control need be no more than would be provided by a low gate separating the lobby and office.

Other areas accessible from the lobby would be the educational adviser's office, directors' room (when not a part of the manager's office), demonstration area, electric appliance display and the engineer or work order clerk's office.

The general office, when large enough to accommodate three or more persons, should not be combined with any other office or area. Adjoining it will be the bookkeeper or office manager's office, vault, and a combination machine and office supply storage room.

CONSTRUCTION MATERIALS

As previously mentioned, the materials for construction of the building should be those locally available; such use should reduce construction costs, and it will identify the structure with the community. This statement usually leads to such questions as: should wood be used freely; are concrete blocks suitable for outside walls; and what about prefabricated structures. Such questions cannot be answered in this paper. REA wants a borrower to have a structure that will last the life of the loan or longer. REA will not tell a borrower what kind of material it has to use to construct the building; it may, however, make certain recommendations and question the use of some of the proposed materials. A borrower, with the assistance of its architect, can best determine what the materials should be by answering the following questions to its entire satisfaction:

1. Is the material as fire resistant as we want it?

2. Are there hydrants or public fire fighting apparatus available?

3. What will the cost of insurance be on the contents of the structure as well as on the structure itself?

4. What will the maintenance costs be?

5. Can the structure be readily altered in the future, if necessary?

6. How will it compare in quality to other buildings already in the neighborhood?

7. How pleasing may it be to the eye, and will it attract other desirable business enterprises to the area?

PURCHASED AND REMODELED BUILDINGS

After a borrower decides to obtain better headquarters facilities than it already has, its first action, quite naturally, is to determine if an existing building is available which could be acquired and remodeled or expanded into adequate quarters at a cost more reasonable than it would be to erect a new building. Occasionally such quarters can be found, but ordinarily they are limited in one way or another to the type and size of quarters usually required for branch facilities. Observations by REA reveal that seldom can an existing building be made as functional as a new one and the cost of remodeling is almost certain to be from fifty to one hundred percent greater than originally anticipated. This exemplifies the need for serious thought being given to a remodeling proposal. Just because a building can be purchased at a low initial cost per cubic foot, it does not follow that the least expensive solution to a headquarters building problem is to purchase and remodel. It is always wise to compare the estimated cost of purchasing and remodeling to the estimated cost of erecting a new building. Even though this comparison, strictly from an original cost standpoint, is decidedly in favor of purchasing and remodeling, the added convenience of the new structure should not be overlooked; the cost of insurance should also be compared and the probable resale or actual value of each, when complete, should be considered.

PREFABRICATED BUILDINGS

In this category there are two general types of structures - wood and metal. The latter is the more popular, and it may be had in aluminum or steel or a combination of each. Either of these metals can be obtained in a variety of shapes and sizes of pieces or units or assemblies which may be fabricated into a structure of most any size or shape. Many borrowers have found a prefabricated building to be the most economical solution to its warehousing problems; however very few borrowers have felt that such a building would be satisfactory to house its office facilities. Undoubtedly more prefabricated buildings would be in general use if the cost of insurance were more favorable in some areas.

There are instances where prefabricated structures have been combined with masonry structures with a quite pleasing result from an appearance, original cost or maintenance standpoint. For temporary occupancy, where existing facilities are not available, and when it would be desirable to salvage the materials in the structure, there is little doubt as to the economy afforded by a prefabricated structure.

CONSTRUCTION PERIOD

During construction, there is very little assistance that can be given by a field engineer except to look over the project during a scheduled visit to determine that workmanship is good and the materials are of the best quality, or to find places where the borrower or architect may have overlooked something significant in the design of the project. The electrical system is a place where improvements can almost always be made, but the important thing to accomplish during construction is to provide a basic electric system from which the borrower can obtain light or power in any quantity that might reasonably be required in that part of the structure.

It is desirable where possible for the field engineer to assist in closing out construction of the project. He could check the final documents, and he could accompany the architect, contractor, and the board of directors or whoever may represent the borrower, in making the final inspection tour. Of these two things, only the first might serve any useful purpose; it could expedite processing of the documents. As to the final inspection tour, this is little more than a formality since the real inspections and some tests will already have been made on the electric work, plumbing, heating and air conditioning system and other installations covered from view. Additional tests and adjustments will be carried on over the first year.

All material and workmanship in a headquarters building is guaranteed by the contractor for a period of one year after acceptance of the project. A field engineer could perform a service for a borrower if he would insist on, or remind the borrower to make a thorough inspection a short time before the guarantee period expires. An inspection at this time would probably reveal evidence of faulty workmanship or inferior quality materials had they been used.

MAINTENANCE

Because of the many kinds of materials, finishes and equipment used in the construction of a conventional headquarters building, no effort will be made to inform field engineers of the proper care required for each, and it is quite

improbable that a borrower would expect such information from a field engineer. However, there are two things that are used continuously throughout the year that will require periodic care, these are the floor covering and the roof. There may be two or three kinds of floor coverings in any one building, but the kind in greatest use is asphalt tile. Rubber and plastic asbestos tiles are also used in great quantities and each should be cleaned and waxed strictly in accordance with the manufacturer's directions if the best service is expected from them.

Even though a roof may carry a manufacturer's warranty for a specific period, it does not mean that the roof is guaranteed not to leak for that period without a minimum amount of maintenance. A borrower should read the warranty and, if necessary, confer with the roof installer to determine just what maintenance would be required in that particular area to keep the bond in effect. Roof flashings are not always covered by the roof bond and failure to properly maintain the flashings can render the roof bond void.

There is another area where damage can be done unintentionally, that is the improper application of paint on acoustic tile or plaster. Some tiles may be painted with an oil paint without doing serious damage to their acoustic properties. Water thinned paints are best on other tiles and a number of them have a permanent factory finish and require cleaning only. Spray painting with a water thinned paint is considered desirable in either case where the tile or plaster is to be painted.

For the more expensive or complicated equipment, the manufacturer will furnish a book of instructions on the use and care of the equipment. This book should be available at all times to the person responsible for the proper functioning of that piece of equipment.

CONCLUSION

In summary it is evident that a field engineer can render a service to an REA borrower and the government by (1) helping to plan the building, (2) by an occasional inspection during construction, (3) by reviewing the final documents and (4) by making an inspection about one year after completion. The most important service will be in the planning stage and a job well done at that time will minimize the amount of service that could be offered or might be required at a later date. The later date could be any time from the time of the beginning of construction to several years after construction has been completed.

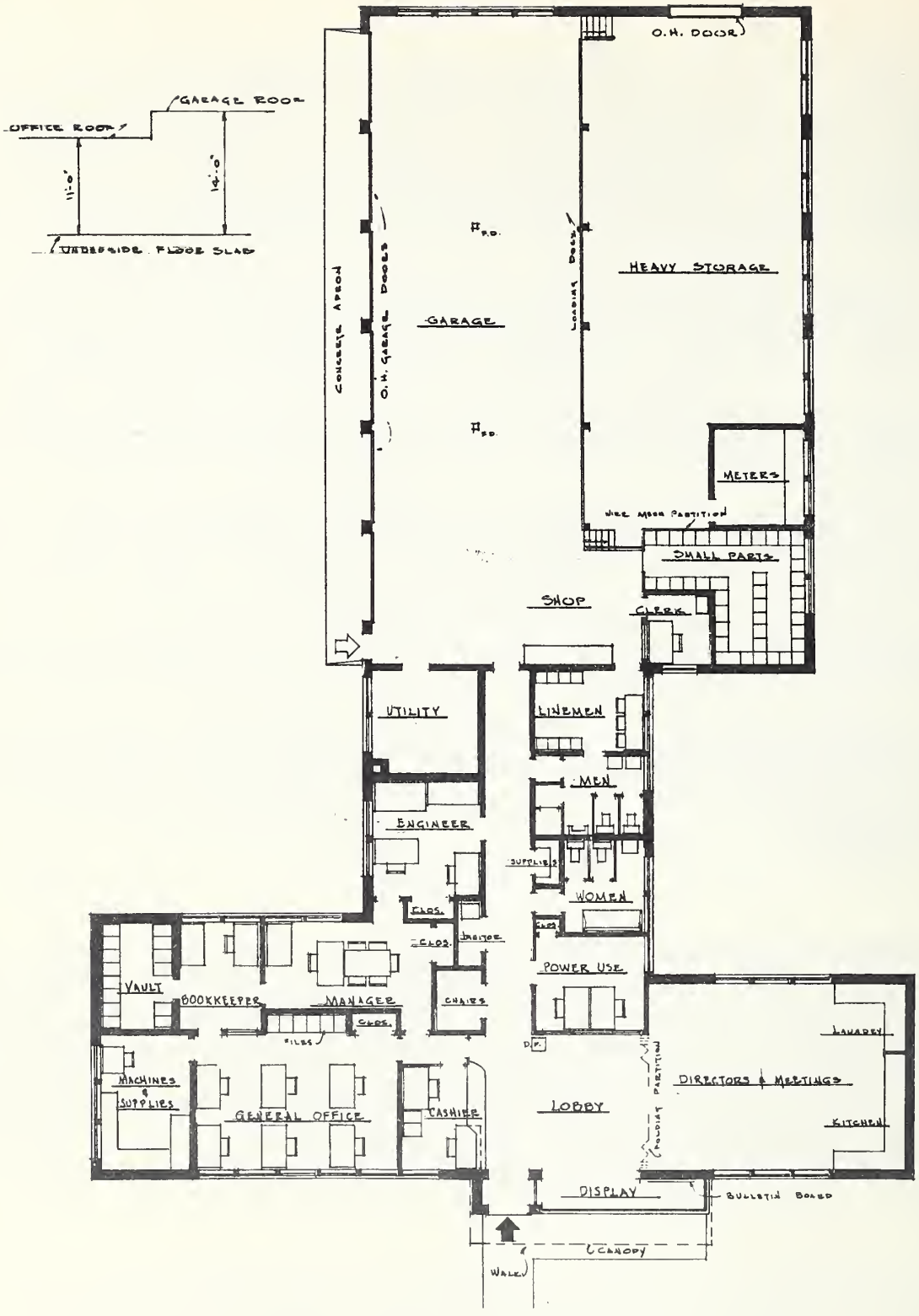

Fig. 1 Typical Layout - Headquarters Building